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BEEDE
16745

SUMMARY REPORT
INVESTIGATION DERIVED WASTE REMOVALS MONITORING

Beede Waste Oil/Cash Energy Site
Plaistow, New Hampshire

Prepared for
New Hampshire Department of Environmental Services

Prepared by
Sanborn, Head & Associates, Inc.

File 1371.4
November 1998

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SHA
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November 13, 1998
File No. 1371.4

Robert P. Minicucci, II, P.E.
New Hampshire Department of Environmental Services
P.O. Box 95, 6 Hazen Drive
Concord, NH 03302-0095

Re: Summary Report
Investigation Derived Waste Removals Monitoring
Beede Waste Oil/Cash Energy Site
Plaistow, New Hampshire

Dear Mr. Minicucci:

Please find attached our Summary Report of Investigation Derived Waste (IDW) Removals Monitoring for the above-referenced site. We appreciate the opportunity to assist you with this project.

If you have any questions, please contact us.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.

Michael K. Abberton
Project Engineer

James Z. Taylor
Project Manager

Charles A. Crocetti, Ph.D., P.G.
Principal

MKA/JZT/CAC:pmm

Attachment

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1.0 INTRODUCTION

On behalf of the New Hampshire Department of Environmental Services (NHDES), Sanborn, Head & Associates, Inc. (SHA) observed and documented removal activities from the Beede Waste Oil/Cash Energy Site (Site) in Plaistow, New Hampshire. The items removed were generated during past and present Site investigation/characterization and removal activities, and were considered by the U.S. Environmental Protection Agency (USEPA) to be Investigation-Derived Waste (IDW) as documented in a letter to the NHDES dated July 30, 1998. As such, the removals work was completed as part of ongoing remedial investigation (RI) activities at the Site. Please note that this report is subject to the limitations presented in Appendix A.

The removal activities were completed by Clean Harbors, Inc. (CHI) of Bow, New Hampshire under contract with the State of New Hampshire and included two separate scopes of work; a liquid waste removal and a solid waste removal. The liquid waste removal tasks were documented in a Request for Quotation prepared by the NHDES and submitted to CHI on June 19, 1998. The solid waste removal tasks were documented in a work plan prepared by SHA entitled "Work Plan For Removal of Waste Items, Beede Waste Oil/Cash Energy Site, Plaistow, New Hampshire" dated June 22, 1998, and a subsequent memorandum prepared by SHA dated June 29, 1998.

2.0 BACKGROUND

2.1 Site Description and History

The Site is located at 7 Kelley Road in Plaistow, New Hampshire. The Site occupies approximately 39 acres and is comprised of two parcels, Parcel 1 to the west, Parcel 2 to the east. The abutting properties and vicinity of the Site are predominately residential. The topography is generally relatively flat at the Site, with the exception of a depression in the central portion of Parcel 1 (former above-ground storage tank [AST] containment structure), storm water runoff pits (SWRPs) 1 and 2 also located on Parcel 1, and approximately 15 soil stockpiles located on Parcels 1 and 2. Two buildings are present on the Site. Prior to the removals activities, approximately 135 ASTs were present at the Site. Locus and Site features plans are provided as Figures 1 and 2.

The Site has frontage on Kelley Road, the location of the entrance to the Site, and on Old County Road. Access to Parcel 1 is currently restricted by a chain link fence which surrounds the developed portion of Parcel 1 except for its boundary with Parcel 2. Access to Parcel 2 is currently restricted by a chain link fence which partially bounds Parcel 2, and Kelley Brook which is located near the northern boundary of the Site.

Commercial operations, including recycling of used oil, and storage and distribution of virgin fuel oil, reportedly started in 1926 on Parcel 1. Sand and gravel excavation began on Parcel 2 some time prior to 1953. Cash Energy, Inc., and related subsidiaries and affiliates operated at the Site from 1962 to 1992. Beede Waste Oil (BWO) was first permitted as a Resource Conservation and Recovery Act

(RCRA) hazardous waste transporter and waste oil blender/burner in 1980. In the fall of 1992, BWO and Cash Energy, Inc. discontinued Site operations. Tri-State Resources, a virgin fuel oil storage and distribution business, operated at the Site from the fall of 1992 until August 1994. No commercial business has operated at the Site since August 1994. In December 1993, the Site was placed on the Comprehensive Environmental Response, Compensation and Liability Information System list (CERCLIS) as NHD018958140. In December 1996, the Site was placed on the National Priorities List (NPL-Superfund List).

2.2 Previous Environmental Investigations and Removals Completed

Several consultants have completed limited investigations at the Site including Groundwater Technology, Inc. (1983-1984), Aries Engineering, Inc.(1991-1992), Roy F. Weston (1993-1994), Haley and Aldrich (1994), and CDM Federal Programs Corporation (1995). Building on these prior studies, SHA completed a more comprehensive Site-wide investigation in 1995 addressing both subsurface contamination and above-ground waste characterization. SHA is currently completing the Site RI.

There have been several phases of Site remediation and removal of waste since 1991. In November 1991 to January 1992, the Site owner installed two oil recovery wells to remove free product oil from the subsurface. In February 1992, NHDES began maintaining oil absorbent booms in the area where free product oil was discharging into Kelley Brook. In February-March 1992, the Site owner excavated two interceptor trenches in an attempt to collect free product oil before it discharged into Kelley Brook. In November 1992, NHDES took over free product recovery efforts, and removed approximately 7,900 gallons of hazardous waste oil/water between December 1992 and May 1994.

Between July 1996 and August 1997, USEPA contractor O. H. Materials Corporation (OHM) completed a time-critical removal action which included sampling and analysis of AST contents and drummed wastes, removal and disposal of all hazardous wastes and 2 to 49 parts per million (ppm) PCB wastes present in ASTs or drums (e.g., oil, water, sludge), and cleaning of ASTs which contained these wastes. Weston (1997) indicates wastes removed included the following approximate quantities:

- 52,000 gallons of oil containing PCBs;
- 20,000 gallons of hazardous lead and PCB-contaminated liquid;
- 39,000 gallons of hazardous, non-PCB liquid;
- 200 tons of hazardous sludge;
- 235,000 gallons of hazardous wastewater;
- 303 drums of waste;
- 550 gallons of isopropyl alcohol; and
- one labpack containing numerous items found at the Site.

Between November 1996 and January 1998, NHDES contractors Total Waste Management Corporation (TWM) and CHI removed non-hazardous and limited amounts of hazardous wastes.

SHA observed and documented these removals (SHA 1997, 1998a). Wastes removed by TWM and CHI included the following approximate quantities:

- 86,000 gallons of on-specification used oil;
- 71,000 gallons of off-specification used oil;
- 470,000 gallons of wastewater;
- 16,000 gallons of ethylene glycol/water mix;
- 80,000 gallons of sludge;
- 850 tons of scrap steel from ASTs and other items;
- 600 drums of waste/products;
- 6,900 gallons of lead-contaminated water/sludge; and
- 18,000 gallons of PCB-contaminated oil/sludge.

By the conclusion of these removals, essentially all drummed wastes, wastes in ASTs and USTs, and the ASTs/USTs themselves formerly present at the Site had been removed and disposed.

In December 1996, USEPA contractor Brown & Root Environmental, Inc. (BRE) initiated a non-time-critical removal action to intercept and recover light non-aqueous phase liquid (LNAPL) present in the subsurface at the Site. Construction of a LNAPL recovery trench and pilot testing of various alternatives for LNAPL removal was ongoing through the Fall of 1997, with full scale system installation planned for 1999. The LNAPL recovery study generated a significant portion of the liquid wastes removed under the liquids removal scope of work, and approximately 150 cubic yards of contaminated soil removed under the solid waste removal scope of work.

In April 1998, the older Site building was demolished by NHDES contractor R.J. Olszak Construction, Inc. (Olszak). The building was demolished as part of the RI activities to allow safe access for exploration/investigation of the underlying fill/waste materials. The abatement and demolition of the building are summarized in Covino (1998a and 1998b) and SHA (1998b).

3.0 LIQUID WASTE REMOVALS

The liquids removal scope of work included the following:

- Task 1 - Dispose of liquid in two frac tanks and clean frac tanks;
- Task 2 - Analyze and dispose of 35 drums of IDW;
- Task 3 - Pack and dispose of excess RI sample material (e.g., soil and groundwater) originally submitted to NHDES laboratory for analysis;
- Task 4 - Analyze and dispose of drummed oil/water and personal protective equipment (PPE)/absorbent located by Kelley Brook;
- Task 5 - Remove, analyze, and dispose of oil from the oil recovery trench; and
- Task 6 - Remove, analyze and dispose of oil/water separator contents.

Liquid waste removal activities were conducted between August 13, and September 11, 1998. On-Site activities were completed by CHI and observed by a representative of SHA. SHA documented the removal activities, and signed bills of lading and Hazardous Waste Manifests (manifests) as an agent for the NHDES.

On August 13, 1998, prior to removing waste from the Site, CHI collected samples for laboratory analysis from the various waste materials to be disposed. The results of the sampling/analyses were discussed with NHDES, and used by CHI/NHDES to determine waste profiles for waste disposal purposes. SHA was not directly involved in observing sampling procedures or the review/discussion of analytical results. We understand that the analytical results for the liquid waste samples were submitted to the NHDES by CHI under separate cover. As such, a discussion of CHI's sampling methods, material sampled, or analytical results is not presented in this report. Information provided by CHI on the waste sampling/analyses completed as part of the Liquid Waste Removals, including sample matrix (liquid or solid), analytical tests, and drum compositing methods are presented in Table 1.

3.1 Task 1 - Dispose of Liquid in Two Frac Tanks and Clean Frac Tanks

Task 1 included the analysis, removal and disposal of the contents of two frac tanks located to the west of soil pile No. 10. The frac tanks had been used by BRE to store effluent generated during pilot testing of LNAPL recovery scenarios, and contained primarily groundwater with a sheen of LNAPL and a thin layer (less than approximately 0.25 inches) of sludge on the bottoms of the tanks. To complete the sampling/analysis requirements for disposal, which had been partially fulfilled by BRE sampling/analyses, CHI sampled/analyzed the tank contents for cyanide. According to CHI, analytical results indicated the contents were classified as groundwater, non-hazardous, non-DOT regulated.

On August 26, 1998, CHI removed two loads (totaling 11,300 gallons of liquid) from the northern frac tank. The liquid was removed using a centrifugal pump mounted permanently to the tractor. CHI removed two loads (totaling 12,450 gallons of liquid) on August 27, 1998; a portion of the first load was taken from, and emptied, the northern frac tank, with the remainder pumped from the southern frac tank. The second load was pumped entirely from the southern frac tank. On August 28, 1998, a final load (3,026 gallons) was pumped from and emptied the southern frac tank using a vacuum truck.

On August 28, 1998, CHI cleaned the interior surfaces of the two frac tanks, including the walls, floor and cross braces. The tanks were first rinsed with a mixture of Simple Green™ detergent and water using a trailer mounted pressure washing unit, scrubbed with a brush, and finished with a second water rinse using the pressure washer. The vacuum truck, which collected the last load of frac tank contents, was also used to collect the wash water generated during cleaning (approximately 225 gallons). The last cleaning step involved wiping down the interior surfaces with a cloth rag. A BRE representative was on-Site to inspect each tank after it was cleaned. After obtaining approval from BRE, CHI secured the hatches on the frac tanks in preparation for their demobilization on

September 2, 1998. Due to weight restrictions, CHI could not transport the entire load of liquid waste pumped into the vacuum truck, which totaled approximately 3,250 gallons after adding the wash water. Approximately 225 gallons were drained from the vacuum truck into several drums which were temporarily staged near the frac tanks. This water was eventually combined with the oily water and sludge vacuumed from the oil/water separator (discussed in section 3.6) and shipped off-Site on August 31, 1998 under Bill of Lading No. 22997.

In total, 27,001 gallons of liquid were removed from the frac tanks in six shipments. The liquid waste was transported by CHI under straight bills of lading to their Rumery Road facility in South Portland, Maine for treatment/disposal. Liquid volumes were estimated by CHI using graduated stick measurements from the truck tank and consulting a tank-specific chart of tank volume versus depth of liquid. Information on the individual shipments is presented in Table 2. Copies of the bills of lading are included in Appendix B.

3.2 Task 2 - Analyze and Dispose of 35 Drums of IDW

CHI removed 35 drums of IDW from the Site on September 11, 1998 under Manifest Nos. 88308 and 88309. Drums were transported by CHI in a van trailer to their Braintree, Massachusetts facility. Originally, NHDES requested 39 drums be removed; however, six were determined to be empty during sampling, and the contents of Drum No. 28/5-14-98 (which consisted of two, 20-pound bags of 'sulfamic acid') were removed from the drum and containerized with laboratory wastes (See Section 3.3). The seven empty drums (including Drum 28/5-14-98) were staged with pre-existing empty drums in the drum storage area on the southwest side of the newer Site building. Three additional drums containing primarily used PPE, were added to the original list of drums to be removed. A summary of the drum manifesting is presented in Table 3. Copies of the manifests are included in Appendix C. According to Mr. Paul Brady of CHI, final destinations for the drums will be documented in a job tracking report to be submitted to the NHDES by CHI under separate cover.

3.3 Task 3 - Pack and Dispose of Excess RI Sample Material

CHI packaged and removed excess RI sample material (e.g., soil and groundwater) returned to the Site which was originally submitted for analysis to NHDES laboratory in Concord, New Hampshire and included six 5-gallon pails of acid-preserved groundwater. On August 13, 1998, CHI packaged the laboratory wastes into two 30-gallon plastic drums and one 55-gallon metal drum. Two of the 5-gallon pails were placed in each drum. Soil samples were placed in the 55-gallon drum and groundwater samples were divided among all three drums. As noted in Section 3.2, the contents of Drum 28/5-14-98 ('sulfamic acid') were placed in the 55-gallon drum to limit the number of drums for disposal.

The drums were shipped on September 11, 1998 to CHI's facility in Chicago, Illinois, under Uniform Hazardous Waste Manifest No. 89027. Final destinations for the drums will be documented in a job tracking report to be submitted to the NHDES by CHI under separate cover. A summary of the drum shipment is presented in Table 2. A copy of the manifest for the drums is included in Appendix D.

3.4 Task 4 - Analyze and Dispose of Drummed Oil/Water and PPE/Absorbent Located by Kelley Brook

This task included the removal of five drums of oil and water, and two drums of PPE and absorbent pads generated during past oil removal activities in the recovery trench and Kelley Brook area, including absorbent pads used by CHI to remove oil from the trench as part of Task 5. The drums were transported to CHI's Braintree, Massachusetts facility on September 11, 1998. The five liquid-containing drums were transported under Uniform Hazardous Waste Manifest No. 88308 (Manifest Line Item 11c), and the two drums of PPE and absorbent pads were transported under Uniform Hazardous Waste Manifest No. 88308 (Manifest Line Item 11b). Final destinations for the drums will be documented in a job tracking report to be submitted to the NHDES by CHI under separate cover. A summary of drum shipments for this task is presented in Table 2. A copy of the manifests is included in Appendix C.

3.5 Task 5 - Remove, Analyze, and Dispose of Oil Collected From the Oil Recovery Trench

On August 27, 1998, CHI initiated removal of oil from the oil recovery trench located near Kelley Brook using an Ingersoll-Rand 185 air compressor and a drum-vac. Due to the limited thickness of the floating oil layer present (less than approximately 0.02 feet of oil), water composed a significant portion of the liquid removed. After filling two 55-gallon drums with primarily water, CHI suggested using oil-absorbent pads to remove the floating oil rather than the drum-vac. Upon verbal approval from NHDES, CHI placed approximately 3 to 6 oil-absorbent pads in each manhole accessway to the trench. On August 28 and 31, 1998, CHI replaced the oil-saturated pads with new pads. Although the pads absorbed oil near to the point of saturation, the residual oil thickness in the trench did not appear to decrease. It was assumed that either oil was entering the trench at a faster rate than it was absorbed by the pads or that the internal configuration of the trench sections and/or the location of the manholes was limiting the effectiveness of the pads. CHI's efforts at removing oil from the trench were discontinued on August 31, 1998 after NHDES decided the continued use of pads would likely not be effective at reducing the oil thickness.

The two drums of oily water were transported to CHI's Braintree facility on September 11, 1998 under Uniform Hazardous Waste Manifest No. 88308 (Manifest Line Item 11c). The oil absorbent pads were placed in the partially full drums of PPE /pads discussed in section 3.4. Final destinations for the drums will be documented in a job tracking report to be submitted to the NHDES by CHI under separate cover. A summary of the drum shipment is presented in Table 2. A copy of the manifest for the two drums of oily water is included in Appendix C.

3.6 Task 6 - Remove, Analyze and Dispose of Oil/water Separator Contents

On August 31, 1998, CHI used a vacuum truck to remove the contents of a subsurface oil/water separator accessed through a manhole located southwest of the newer Site Building. CHI vacuumed out approximately 690 gallons of oily water and sludge from the base of the oil/water separator. The

volume removed was calculated by CHI using a graduated stick measurement from the vacuum truck tank and consulting a truck-specific chart of tank volume versus liquid depth. Before leaving the Site, CHI transferred the approximately 225 gallons of rinseate generated from cleaning the frac tanks as part of Task 1 into the vacuum truck with the oil/water separator contents. The combined oil/water separator contents and frac tank rinseate (totaling 915 gallons) were transported to CHI's Rumery Road facility in South Portland, Maine on August 31, 1998 under Uniform Bill of Lading No. 22997. A summary of the liquid removal is presented in Table 2. A copy of the bill of lading is included in Appendix E.

4.0 SOLID WASTE REMOVALS

The solid waste removal scope of work included the following:

- Task 1 - Remove and dispose of existing tarpaulins and re-cover soil piles;
- Task 2 - Remove and dispose of suspected hazardous soil (including soil characterization);
- Task 3 - Remove and dispose of suspected non-hazardous debris;
- Task 4 - Remove and dispose of suspected hazardous debris;
- Task 5 - Remove and dispose of wooden pallets;
- Task 6 - Empty, clean and dispose of a 275-gallon AST and contents (including sludge characterization/transport/disposal); and
- Task 7 - Consolidate tires found on-Site into a location designated by NHDES.

Removal activities associated with the solid waste scope of work were conducted by CHI between September 2, and October 2, 1998. SHA representatives were present on occasion to monitor and document the progress of removal activities and, when necessary, to sign bills of lading and waste manifests as an agent for the NHDES. A summary of waste shipments, including material shipped and bill of lading/manifest number, is presented in Table 4.

On September 8, 1998, prior to removing any 'solid' waste from the Site, CHI collected samples for laboratory analysis from various waste materials to be disposed, including a composite sample from the Tasks 2, 3, 4, 5, and 6 items. The results of analytical testing on the samples were discussed with NHDES, and used by CHI/NHDES to determine waste profiles for waste disposal purposes. With the exception of soil pile tarps (Task 1), SHA was not directly involved in observing sampling procedures or the review/discussion of analytical results. We understand that the analytical results for the 'solid' waste samples were submitted to the NHDES by CHI under separate cover. As such, a discussion of CHI's sampling methods, material sampled, or analytical results is not presented in this report.

4.1 Task 1 - Remove and Dispose of Existing Tarpaulins and Re-Cover Soil Piles

CHI initiated removal and replacement of soil pile tarpaulins (tarps) on September 2, 1998. However, during placement of the first three of the newly ordered, custom-made tarps, CHI discovered that most of the new tarps were not correctly sized to cover the piles for which they were

ordered. CHI measured the soil pile dimensions and, where possible, re-assigned the new, custom-made tarps to other soil piles. Additionally, CHI received approval from NHDES to combine individual tarps for the purpose of covering some of the soil piles, namely Nos. 5A, 6, 8, and 10/10A. By re-assigning and/or combining tarps, CHI limited the number of additional tarps needed to complete the re-covering of the soil piles. CHI completed re-covering the soil piles by September 25, 1998.

CHI performed the soil pile re-covering with a crew of 3 to 5 workers and a Bobcat loader equipped with lifting forks. CHI used a similar process to remove old tarps and place the new tarps. First, CHI removed and temporarily stockpiled tires used to weight down the old tarps, and then removed from the perimeter of the pile the soil berm also used to hold down the tarp. Next, CHI removed the old tarp from the soil pile and placed it in a roll-off container. CHI then placed the new tarp over the pile, taking care when laying the tarp over any exposed debris in the pile. Lastly, a new soil berm was placed over the edges of the new tarp around the pile perimeter, and tires were placed back on the tarp.

Where multiple tarps were used to cover a single pile, the individual tarps were "stapled" together using brass grommets. Grommets were spaced every approximately 2 to 3 feet along the length of a seam. After grommeting, CHI covered the top of the seam with at least three overlapping rows (approximately ¼") of duct tape.

The tarps removed from the soil piles, and miscellaneous piles of tarps and tarp pieces observed across the Site, were collected and placed in rolloff containers. Pursuant to requirements of the intended receiving facility for the tarps, Waste Management Inc.'s Turnkey Facility in Rochester, New Hampshire (Turnkey), SHA collected on September 10, 1998 two composite tarp samples from each of the first two rolloff containers containing tarps. The samples were submitted to Eastern Analytical, Inc. (EAI) of Concord, New Hampshire for the following analyses:

- Toxicity Characteristic Leaching Procedure (TCLP) RCRA 8 metals by U.S. Environmental Protection Agency (USEPA) Method 6010B (Method 7470 for Mercury);
- TCLP VOCs by USEPA Method 8260; and
- Total PCBs by USEPA Method 8082.

PCBs were detected in all four samples at concentrations ranging from 0.6 milligrams per kilogram (mg/kg, equivalent to parts per million [ppm]) to 12 ppm, and barium was detected in one sample at a concentration of 1.6 ppm. The results indicate that VOCs were not detected. Based on these results, the tarps were accepted at Turnkey for disposal. Roll-offs were transported to Turnkey by Troiano Waste Services (Troiano) on September 24, 29 and 30, 1998. In total, 90 cubic yards of tarp material was disposed at Turnkey. A copy of the analytical results is included in Appendix F. Bills of lading for the tarp shipments are included in Appendix G.

4.2 Task 2 - Remove and Dispose of Suspected Hazardous Soil (Including Soil Characterization)

CHI removed an approximately 150-cubic yard soil pile from the Site on September 30, 1998. The soil pile was generated by BRE during the excavation of the oil recovery trench. According to CHI and NHDES, results of the soil samples collected for waste profiling indicated the soil pile could be classified as non-hazardous. After removing the tarps covering the pile, CHI used a front-end loader to place the soil into dump trailers. Six trailer loads of soil were removed from the Site and transported by Hanson Trucking of Chelmsford, Massachusetts, Fillmore Trucking of Loudon, New Hampshire, and Therriault Trucking of Pelham, New Hampshire to Environmental Soil Management, Inc. (ESMI) thermal treatment facility in Loudon, New Hampshire. Based on ESMI weight slips, 192 tons of soil were removed. Copies of the bills of lading and ESMI weight tickets are included in Appendix H.

4.3 Task 3 - Remove and Dispose of Suspected Non-Hazardous Debris

In the original scope of work for solids removal, some of the debris at the Site was anticipated to be classified as non-hazardous (covered by Task 3) and some as hazardous (covered by Task 4). However, based on analyses completed on samples collected by CHI for waste profiling, CHI in consultation with NHDES, determined the debris to be non-hazardous and acceptable to Turnkey. As such, Task 3 was expanded to include Task 4 items.

CHI began debris collection the week of September 7, 1998 and continued intermittently until completion on September 30, 1998. Debris items collected included plastic sheeting, plastic snow fence, wooden items, metal window frames, miscellaneous plastic tubing, rubber hoses, a refrigerator, rolls of barbed wire, fence poles, and several sections of chain-link fence. Typically, debris was collected in the bucket of a bobcat or front-end loader and transferred to a temporary stockpile or a rolloff container. As rolloffs became available, debris in stockpiles was transferred to rolloffs. An exception to this procedure was a refrigerator found in the southwest portion of Parcel 1, which was stored separately from the remaining debris due to special disposal requirements.

During a Site inspection conducted on September 30, 1998, NHDES indicated approval with the extent of debris removed. In total, 110 cubic yards of debris were removed from the Site in five rolloff containers. The debris was transported by Troiano to Turnkey for disposal as construction debris. The refrigerator was shipped by CHI to Advanced Recycling of Concord, New Hampshire. Copies of the bills of lading for the rolloff shipments are included in Appendix I.

4.4 Task 4 - Remove and Dispose of Suspected Hazardous Debris

Based on the results of the debris sampling and analysis, Task 4 items were determined to be non-hazardous and, as such, disposed under Task 3.

4.5 Task 5 - Remove and Dispose of Wooden Pallets

Similar to the Task 3/4 debris, a portion of the wooden pallets at the Site were anticipated to be potentially classified as hazardous and require special handling and disposal. According to CHI, however, the analytical results of composite samples collected from the pallets did not indicate hazardous characteristics or the presence of PCBs. Therefore, CHI and NHDES determined the pallets to be non-hazardous, non-regulated material.

In total, 275 wooden pallets were removed from the Site on September 25 and 28, 1998 for recycling. The majority of the pallets removed came from the drum storage area adjacent to the newer Site building, with the remainder collected from various areas on Parcel 1. Approximately 20 additional pallets were oil-stained/broken and determined to be unsuitable for recycling. These pallets were placed in rolloffs with the Task 3 debris. Recyclable pallets were transported by CHI and Ed's Pallet Repair of Bow, New Hampshire (Ed's) to Ed's recycling facility. A copy of the bills of lading for these shipments are included in Appendix J.

4.6 Task 6 - Empty, Clean and Dispose of a 275-Gallon AST and Contents

A 275-gallon AST was uncovered during RI test pit activities in the former landfill area. On September 11, 1998, CHI removed the contents, an oily sludge, and cleaned the tank. The contents, cleaning pads, and rinse water were placed in one, 55-gallon drum and transferred to the drum storage area. Prior sampling of the AST contents indicated that the oily sludge was hazardous due to elevated levels of lead. On September 30, 1998, the AST was transported by CHI to Advanced Recycling of Concord, New Hampshire, and on October 2, 1998 the drum of oily sludge was shipped by CHI to their Braintree, Massachusetts facility under Uniform Hazardous Waste Manifest Number 91542. Upon NHDES request, three additional 55-gallon drums of PPE, discovered in the drum storage area during the solids removal activities, were included on this manifest. A copy of the manifest and Land Disposal Restriction Notification Form for the drum shipment is included in Appendix K.

4.7 Task 7 - Consolidate Tires Found On-Site into a Location Designated by NHDES

Tires that were not used to weight down tarps on soil piles were consolidated by CHI and stockpiled near the former AST containment structure south of soil pile No. 1.

5.0 SUMMARY

Between August 13 and October 2, 1998, NHDES contractor CHI completed the removal of various liquid and solid wastes from the Site pursuant to work scopes prepared/approved by NHDES. The liquid waste removals work scope included the removal of primarily liquid or sludge materials generated from an on-Site free product recovery study conducted by USEPA contractor BRE from October to December, 1997; RI sampling activities; cleanup of the newer and former older Site building areas; and an oil/water separator located to the southwest of the newer Site building. The

solid waste removals work scope included removal and replacement of tarps covering 11 soil piles, removal and disposal of approximately 150 cubic yards of contaminated soil from the excavation of the oil recovery trench by BRE, the cleaning and removal of a 275-gallon aboveground storage tank, and general Site cleanup of miscellaneous solid waste materials generated during past and present Site investigation/characterization and removal activities. The quantities of material disposed under the various tasks are listed in Tables 2, 3, and 4. Copies of bills of lading, waste manifests, and sampling results (from sampling performed by SHA) are provided in the appendices to this report.

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REFERENCES

Haley and Aldrich (H&A); February 1994; (H&A, 1994); *Underground Storage Tank Program, Beede Waste Oil Site, Seven Kelley Road, Plaistow, New Hampshire.*

Covino Environmental Associates, Inc. (Covino); (Covino 1998a); *Covino Project 98.00374, Asbestos Abatement Monitoring, Beede Waste Oil, 7 Kelly Road, Plaistow, New Hampshire.*

Covino Environmental Associates, Inc. (Covino); (Covino 1998b); *Covino Project 98.00374A, Analysis of Lead in Air Samples, Beede Waste Oil, 7 Kelly Road, Plaistow, New Hampshire.*

SHA; September 1995; (SHA, 1995) *Site and Waste Characterization, Beede Waste Oil/Cash Energy Site, Plaistow, New Hampshire.*

SHA; December 1997; (SHA, 1997); *Summary Report, Removals Monitoring, Beede Waste Oil/Cash Energy Site, Plaistow, New Hampshire.*

SHA; March 1998; (SHA, 1998a); *Addendum Report, Removals Monitoring, Beede Waste Oil/Cash Energy Superfund Site, Plaistow, New Hampshire.*

SHA; July 1998; (SHA, 1998b); *Abatement and Demolition Observation and Documentation of Older Site Building, Beede Waste Oil/Cash Energy Site, Plaistow, New Hampshire.*

Roy F. Weston, Inc., October, 1997; for USEPA - Region 1 Emergency Planning and Response Branch, Lexington, Massachusetts; *Removal Program After Action Report for the Beede Waste Oil Site, Plaistow, New Hampshire.*

TABLES

TABLE 1
Summary of Waste Sampling/Analysis
Liquid Waste Removal
Beede Waste Oil/Cash Energy Site
Plaistow, New Hampshire

Objects(s) Sampled	Associated Liquid Waste Removal Task	Sample Matrix	Analyses Completed		
			TCLP	PCBs	Total Cyanide
Northern Frac tank	1	Liquid			X
Southern Frac Tank	1	Liquid			X
Drums in Drum Storage Area					
Drums 1,12,15,18	2	Liquid	X	X	
Drums 2,5,21,27	2	Liquid	X	X	
Drums 3,4,7,17	2	Liquid	X	X	
Drums 6,10,11,13	2	Liquid	X	X	
Drums 8,9,14,22	2	Liquid	X	X	
Drums 19,20,34	2	Liquid	X	X	
Drum 30	2	Liquid	X	X	
Drum 35	2	Liquid	X	X	
Drums 23,24	2	Solid	X	X	
Drums 25,26	2	Solid	X	X	
Drum 28	2	Solid	X	X	
Drums of Oil/Water From Kelley Brook/Recovery Trench	4/5	Liquid	X	X	
Drums of PPE/Absorbent Pads From Brook Area/Recovery Trench	4/5	Solid	X	X	
Oil/Water Separator Contents	6	Liquid	X	X	

Notes:

1. SHA Drum ID Nos. refer to the designations assigned to the drums by SHA in May 1998 for inventory purposes. Multiple Drum ID Nos. per line indicates a composite sample was generated by combining discrete samples from each drum listed.

2. All samples were collected by Clean Harbors, Inc. (CHI) on August 13, 1998 and analyzed by CHI's laboratory in Braintree, Massachusetts, except herbicides which were analyzed by SciLab of Boston, Massachusetts.

3. Characterization of the excess RI sample material (Task 3) was based on information provided by the New Hampshire Department of Environmental Services, Concord, New Hampshire.

4. 'TCLP' includes the following analyses performed on a Toxicity Characteristic Leaching Procedure (TCLP) extract of the sampled material:

   RCRA 8 Metals by USEPA Methods 6010B/7470A.
   Volatile Organic Compounds by USEPA Method 8260.
   Semivolatile Organic Compounds by USEPA Method 8270.
   Pesticides by USEPA Method 8080.
   Herbicides by USEPA Method 8151.

5. Total cyanide was analyzed by USEPA Method 335.2(a).

6. Polychlorinated Biphenyls (PCBs) were analyzed by USEPA Method 608.

TABLE 2
Removal Summary
Tasks 1, 3 - 6
Liquid Waste Removal
Beede Waste Oil/Cash Energy Site
Plaistow, New Hampshire

Task No.	Description	Material	Shipment Date	Manifest or Bill of Lading No.	Quantity	Unit
1	Dispose of Liquid in Two Frac Tanks and Clean Frac Tanks	Oily Water	8/26/98	BOL - 1	5,300	Gallons
		Oily Water	8/26/98	BOL - 2	6,000	Gallons
		Oily Water	8/27/98	BOL - 3	6,200	Gallons
		Oily Water	8/27/98	BOL - 4	6,250	Gallons
		Oily Water	8/28/98	BOL - 5	3,026	Gallons
		Oily Water	8/31/98	22997 (Note 2)	225	Gallons
				Subtotal	**27,001**	**Gallons**
3	Pack and Dispose of Excess RI Sample Material	Lab Wastes	9/11/98	89027	3	Drums
4	Analyze and Dispose of Drummed Oil/Water and PPE/Absorbent Pads Located by Kelley Brook	Oily Water	9/11/98	8830 (Manifest Line Item 11c)	5 (Note 5)	Drums
		PPE/Absorbent Pads	9/11/98	8830 (Manifest Line Item 11b)	2	Drums
				Subtotal	**7**	**Drums**
5	Remove, Analyze and Dispose of Oil from the Oil Recovery Trench (Note 4)	Oily Water	9/11/98	8830 (Manifest Line Item 11c)	2 (Note 5)	Drums
6	Remove, Analyze and Dispose of Oil/Water Separator Contents	Oily Water/Sludge	8/31/98	22997	690	Gallons

Notes:

1. "Manifest/Bill of Lading No." refers to either the Manifest Document Number or the Bill of Lading Document Number. "BOL - #" assigned by SHA to unnumbered Straight Bills of Lading for tracking of documents.

2. The final shipment of frac tank contents consisted primarily of rinseate from cleaning the tanks and was transported from the Site in the same truck and under the same Bill of Lading as the Oil/Water Separator contents removed under Task 6.

3. "Manifest Line Item" refers to the waste description from Section 11 of the Uniform Hazardous Waste Manifests.

4. The absorbent pads used in Task 5 were combined in drums of PPE/absorbent pads from Task 4 to reduce the number of drums shipped.

5. Manifest Line Item 11c of the indicated manifest also includes four drums removed under Task 2 [refer to Table 3].

TABLE 3
Removal Summary
Task 2
Liquid Waste Removal
Beede Waste Oil/Cash Energy Site
Plaistow, New Hampshire

Drum Contents	Manifest No.	Manifest Line Item No.	SHA Drum ID Nos.	Drum Description
Activated Carbon from Treatability Study	88308	11a	23, 24	2 x 55 gal.
Oily Water		11c (Note 6)	2, 5, 21, 27	3 x 55 gal., 1 x 85 gal.
Oily Water from Treatability Study		11d	6, 10, 11, 13	4 x 55 gal.
Oily Water from Monitoring Wells and Treatability Study	88309	11a	1, 3, 4, 7, 8, 9, 12, 14, 15, 17, 18, 19, 20, 22, 30, 34, 35	16 x 55 gal., 1 x 85 gal.
PPE and Sampling Materials		11b	36, 37, 38 and three additional drums of PPE	6 x 55 gal.
Caustic Material from Former Older Site Building		11c	25, 26	2 x 85 gal.
TOTALS				**31 x 55 gal., 4 x 85 gal.**

Notes:

1. Descriptions of drum contents are based on information written on drums and visual observations of drum contents by CHI personnel during sampling.

2. "Manifest No." refers to the Manifest Document Number.

3. "Manifest Line Item No." refers to the waste description from Section 11 of the Uniform Hazardous Waste Manifest.

4. "SHA Drum ID Nos." refers to the designations assigned to the drums by SHA in May 1998 for inventory purposes.

5. "Drum Description" refers to the number and individual capacity of the drums.

6. Line Item 11c of Manifest 88308 also includes 7 drums removed under Tasks 4 and 5 [refer to Table 2].

7. Six drums (SHA Drum ID Nos. 16, 29, 31, 32, 33, and 39) were determined to be empty and left in the drum storage area. The contents of the drum designated number 28 by SHA were removed from the drum and added to the RI Sample Material containers from Task 3 of the Liquid Waste Removal.

TABLE 4
Summary of Disposal Shipments
Solid Waste Removal
Beede Waste Oil/Cash Energy Site
Plaistow, New Hampshire

Task No.	Description	Material	Shipment Date	BOL or Manifest Number	Quantity	Unit
1	Remove and Dispose Existing Tarpaulins and Re-cover Soil Piles	Tarps	9/24/98	23527	25	Cubic Yards
		Tarps	9/24/98	23528	25	Cubic Yards
		Tarps	9/29/98	23538	25	Cubic Yards
		Tarps	9/30/98	23550	15	Cubic Yards
				Subtotal	**90**	**Cubic Yards**
2	Remove and Dispose of Suspected Hazardous Soil	Soil	9/30/98	22903	32.13	Tons
		Soil	9/30/98	22904	30.66	Tons
		Soil	9/30/98	22905	30.98	Tons
		Soil	9/30/98	ESMI-1	33.47	Tons
		Soil	9/30/98	ESMI-2	35.35	Tons
		Soil	9/30/98	ESMI-3	29.60	Tons
				Subtotal	**192.19**	**Tons**
3	Remove and Dispose of Suspected Non-Hazardous Debris	Debris	9/24/98	23529	25	Cubic Yards
		Debris	9/29/98	23537	25	Cubic Yards
		Debris	9/30/98	22902	20	Cubic Yards
		Debris	9/30/98	23534	20	Cubic Yards
		Debris	9/30/98	22906	20	Cubic Yards
		Refrigerator	9/30/98	NP	1	Each
				Subtotal	**110**	**Cubic Yards**
4	Remove and Dispose of Suspected Hazardous Debris Remove and Dispose of	None (Note 3)				
5a	Wooden Pallets (Suspected Hazardous)	None (Note 3)				
5b	Remove and Dispose of Wooden Pallets (Suspected Non-Hazardous)	Pallets	9/25/98	23000	187	Each
		Pallets	9/28/98	22999	50	Each
		Pallets	9/28/98	22998	38	Each
				Subtotal	**275 (Note 4)**	**Each**
6	Empty, Clean and Dispose of a 275-Gallon AST	Tank	9/30/98	NP	1	Each
		Drums	10/2/98	91542	4 (Note 5)	Each

Notes:

1. "BOL or Manifest Number" refers to the Bill of Lading Number or the Manifest Document Number, as appropriate. "ESMI-#" assigned by SHA to unnumbered Straight Bills of Lading for tracking of documents.

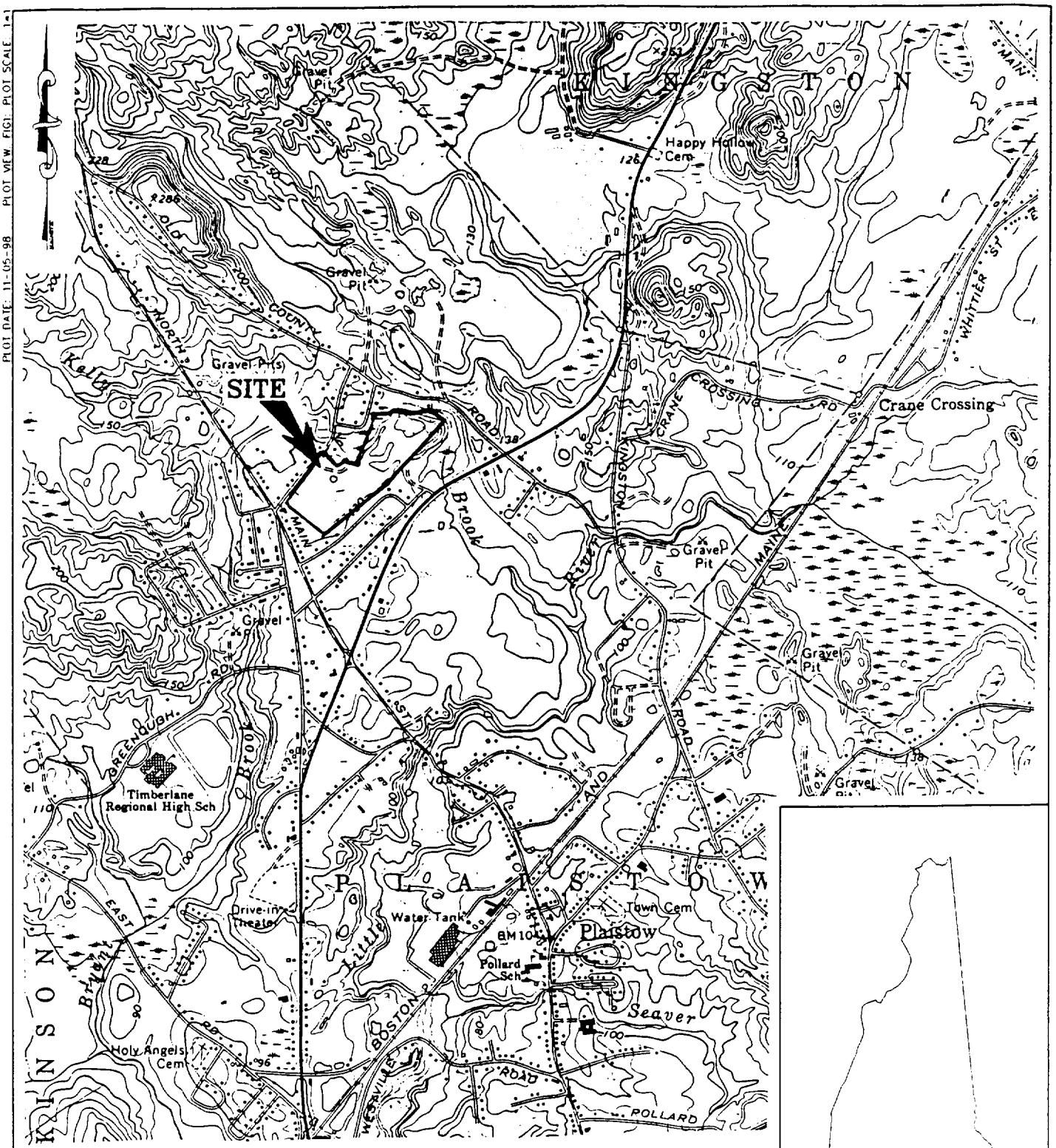
2. "NP" indicates a bill of lading or manifest was not provided to SHA.

3. Analytical results on suspected-hazardous debris and wooden pallets (Tasks 4 and 5a) did not indicate the presence of hazardous characteristics. Therefore, no disposal shipments were made under Tasks 4 or 5a.

4. An additional 20 oil-stained/broken pallets were removed under Task 3.

5. Three additional 55-gallon drums of PPE, discovered in the drum storage area during removal activities, were removed along with the one 55-gallon drum of the AST contents.

FIGURES



NOTES:

BASE MAP TAKEN FROM 7.5 MINUTE
USGS QUADRANGLE MAP:
HAVERHILL, MASSACHUSETTS–NEW HAMPSHIRE
(PHOTOINSPECTED 1977)

BEEDE WASTE OIL/CASH ENERGY SITE
PLAISTOW, NEW HAMPSHIRE

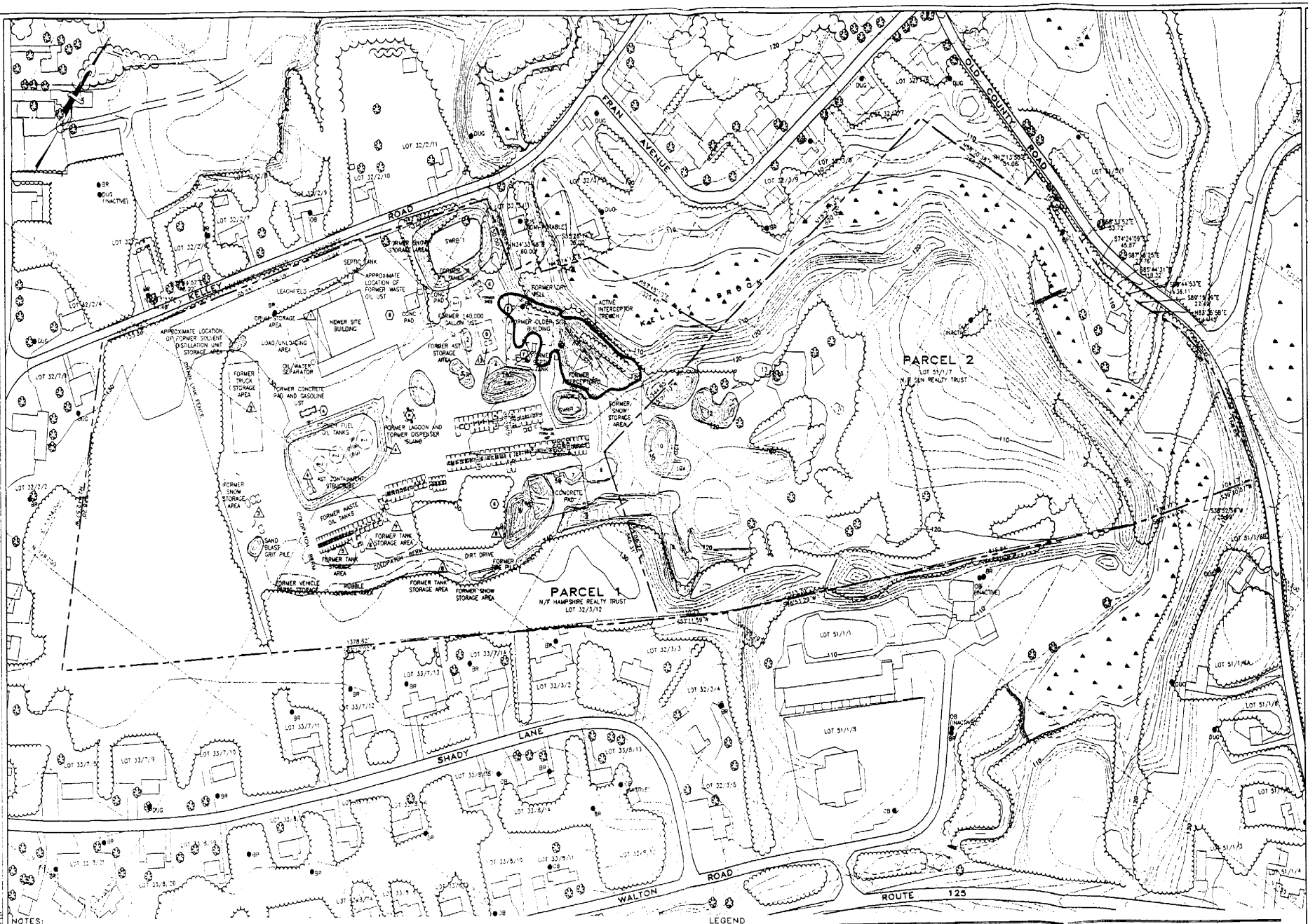
SUMMARY REPORT
IDW REMOVALS MONITORING
LOCUS PLAN

SHA
Sanborn, Head & Associates
Consulting Engineers & Scientists

SCALE: 1"=2000'	DRAWN BY: PGP	FILE NO.1371.4
DATE: NOV 98	CHECKED BY: DAC	FIGURE NO.

PCP FILE: SHA-STD.PCP
AUTOFILL FILE: NONE
PLOT DATE: 11-05-98
FILE: 1371/1371.4/1371483.DWG
XREFS: \DRIVE\JOB NO \FILE NAME
PLOT VIEW: FIG1 PLOT SCALE: 1=

SHEHAWN, HEAD & ASSOCIATES, INC



NOTES:

1) THE SITE FEATURES FOR PARCEL 1 WERE DRAWN FROM A PLAN ENTITLED, "TOPOGRAPHIC PLAN OF LAND IN PLAISTOW, NH", PREPARED BY ANDOVER CONSULTANTS AT A SCALE OF 1" =100', AND DATED FEBRUARY 1991. PARCEL 2 WAS DRAWN FROM A PLAN ENTITLED "TOPOGRAPHIC WORKSHEET IN A PARCEL IN PLAISTOW, NH", PREPARED BY EASTERN TOPOGRAPHICS AT A SCALE OF 1" =40', AND DATED JANUARY 1990. THIS INFORMATION WAS DIGITIZED AND MERGED WITH A BASE MAP WHICH WAS PHOTOGRAMMETRICALLY CREATED BY THE CORPS OF ENGINEERS, ST LOUIS DISTRICT, PRODUCED FOR THE USEPA REGION 9, ENVIRONMENTAL MONITORING LABORATORY, LAS VEGAS, NEVADA. DATE OF PHOTOGRAPHY, MAY 7, 1996. DATE OF PREPARATION FEBRUARY 1997. ORIGINAL SCALE: 1" =300'. INFORMATION ON SITE LOT BOUNDARIES IS FROM A PLAN ENTITLED "BEEDE WASTE OIL - EXPLORATION LOCATION PLAN PLAISTOW, NEW HAMPSHIRE," PREPARED BY MERIDIAN LAND SERVICES OF AMHERST, NEW HAMPSHIRE AT A SCALE OF 1" = 40'. DATE OF PREPARATION AUGUST 15, 1998. INFORMATION ON LOT NUMBERS IS BASED ON TOWN OF PLAISTOW, NEW HAMPSHIRE ASSESSORS MAPS PREPARED BY ANU AIRMAP, INC. AND UNDATED. IN SOME CASES LOT NUMBERS AND PROPERTY BOUNDARIES WERE NOT CLEAR AND THEREFORE REPRESENT THAT INTERPRETATION OF THE ASSESSORS MAPS.

2) ADDITIONAL SITE FEATURES WERE DEVELOPED FROM INFORMATION PROVIDED BY RHODES AND FROM SANBORN, HEAD AND ASSOCIATES, INC. OBSERVATIONS MADE DURING FIELD INVESTIGATIONS FROM 1995 TO 1998.

3) FEATURES AND LOCATIONS PRESENTED ON THIS FIGURE ARE BASED ON THE INFORMATION AND OBSERVATIONS REFERENCED ABOVE. DIFFERING FEATURES AND LOCATIONS MAY EXIST OR HAVE EXISTED IN THE PAST. SUCH DIFFERENCES MAY BE THE RESULT OF CHANGES IN THE SITE LAYOUT OVER TIME, AND OR DISCREPANCIES IN AVAILABLE FEATURES DUE TO REPORTING INCOMPLETE OR UNRELIABLE PLANS AND INFORMATION, AND OTHER FACTORS.

4) THE FOLLOWING ABBREVIATIONS ARE USED ON THIS FIGURE:
- SWRP - SURFACE WATER RUNOFF PIT.
- AST - ABOVE GROUND STORAGE TANK
- UST - UNDERGROUND STORAGE TANK
- DUG - DUG OVERBURDEN WATER SUPPLY WELL.
- OB - DRILLED OR DRIVEN OVERBURDEN WATER SUPPLY WELL.
- BR - DRILLED BEDROCK WATER SUPPLY WELL

5) LOCATIONS OF FORMER SITE FEATURES (E.G. AST, UST, BUILDING) SHOWN WITH DASHED OUTLINE.

6) THE LOCATIONS INDICATED FOR RESIDENTIAL WELLS ARE APPROXIMATE. LOCATIONS WERE BASED ON A 1991 WATER WELL SURVEY PERFORMED BY PLAISTOW CONSULTANTS OF PLAISTOW, NEW HAMPSHIRE, A 1995 BEEDE WASTE OIL/CASH ENERGY AND A 1997 WATER WELL SURVEY PERFORMED BY MERIDIAN LAND SERVICES OF AMHERST, NEW HAMPSHIRE, SHA OBSERVATIONS MADE DURING FIELD INVESTIGATIONS FROM 1995 TO 1998, AND SURVEY INFORMATION BY MERIDIAN LAND SERVICES OF AMHERST, NEW HAMPSHIRE.

7) SEE TEXT AND TABLES FOR ADDITIONAL INFORMATION.

LEGEND

- FORMER LOCATION OF AST GROUPING - SEE SHA (1995 B).
- FORMER LOCATION OF UST - SEE SHA (1995 B).
- APPROXIMATE FOOTPRINT OF SOIL PILES BASED ON FIGURE 4 OF H & A (1994 A). WHERE APPROPRIATE, SOIL PILE LOCATIONS WERE MODIFIED BASED ON SITE TOPOGRAPHY AND OBSERVATIONS MADE BY SANBORN, HEAD AND ASSOCIATES, INC.
- APPROXIMATE PROPERTY BOUNDARY FOR PARCEL 1 AND 2
- APPROXIMATE LOCATION / ORIENTATION OF BEAVER DAM
- APPROXIMATE LOCATION OF UNDERGROUND PIPING (E.G. CONNECTING SEWER SITE BUILDING WITH FORMER WASTE OIL UST AND NEWER SITE BUILDING WITH SEPTIC TANK AND LEACHFIELD)
- OIL RECOVERY WELL INSTALLED BY SITE OWNER IN NOVEMBER 1991 OR JANUARY 1992, CURRENTLY INACTIVE, AND ASSOCIATED OIL RECOVERY AST (SEE SHA, 1995 B).
- OVERBURDEN (OB'), DUG OVERBURDEN (DUG), OR BEDROCK (BR) WATER SUPPLY WELL/RESIDENTIAL WATER WELL.
- FORMER LOCATION OF SITE FEATURE.
- APPROXIMATE FOOTPRINT OF LANDFILL AREA
- OTHER SYMBOLS ARE DEFINED IN THE PLAN

Beede Waste Oil Doc ID 16745
Summary Report, Investigation Derived Waste Removal Monitoring.
Appendices are stored in a separate file

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